

**What is claimed is:**

1. A silane-containing polyvinyl alcohol or polyvinyl acetal, obtainable by means of
  - 5 a) free-radical polymerization of one or more vinyl esters of unbranched or branched alkylcarboxylic acids having from 1 to 18 carbon atoms in the presence of silane-containing aldehydes or hemiacetals or full acetals thereof,
  - 10 b) hydrolysis of the thus obtained vinyl ester polymers, and optionally
  - c) acetalization of the partly hydrolyzed or fully hydrolyzed vinyl ester polymers.
- 15 2. A silane-containing polyvinyl alcohol or polyvinyl acetal as claimed in claim 1, wherein the silane-containing aldehydes and the hemiacetals and full acetals thereof are selected from the group consisting of compounds of the structural formulae
  - 20 I)  $R_3Si-[OSiR_2]_y-(CH_2)_x-CH=O$ ,
  - II)  $R_3Si-[OSiR_2]_y-(CH_2)_x-CH(OR^1)_2$ ,
  - III)  $R_3Si-[OSiR_2]_y-(CH_2)_z-Ar-(CH_2)_z-CH=O$ ,
  - IV)  $R_3Si-[OSiR_2]_y-(CH_2)_z-Ar-(CH_2)_z-CH(OR^1)_2$ ,
  - V)  $O=CH-(CH_2)_x-Si(R)_2-O-Si(R)_2-(CH_2)_x-CH=O$ ,
  - 25 VI)  $[SiO(R)-(CH_2)_z-CH=O]_{3-4}$ ,where R is the same or different and is halogen; is an unbranched or branched, saturated or unsaturated, optionally substituted alkyl or alkoxy radical having from 1 to 12 carbon atoms; is an acyl radical having from 2 to 12 carbon atoms, where R may optionally be interrupted by heteroatoms from the group consisting of N, O, S; is an optionally substituted aryl or aryloxy radical having 3 to 20 carbon atoms, where the aromatic may also contain one or more heteroatoms from the group consisting of N, O, S, and  
35  $R^1$  is H, unbranched or branched, saturated or unsaturated, optionally substituted alkyl radical

having from 1 to 12 carbon atoms which may optionally be interrupted by heteroatoms from the group consisting of N, O, S; Ar is an aromatic group which may optionally contain one or more heteroatoms from the group consisting of N, O, S, and  
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x = from 2 to 40, y = from 0 to 100, z = 0 and 20.

3. A silane-containing polymer as claimed in claim 1  
10 and 2, characterized in that the silane-containing aldehydes are used in an amount of from 0.0001 to 5.0% by weight, based on the total weight of the monomers.

15 4. A silane-containing polymer as claimed in claim 1 to 3, characterized in that ethylenically unsaturated, silane-containing monomers are copolymerized.

20 5. A process for preparing silane-containing polyvinyl alcohols and polyvinyl acetals by means of  
a) free-radical polymerization of one or more vinyl esters of unbranched or branched alkyl-carboxylic acids having from 1 to 18 carbon atoms  
25 in the presence of silane-containing aldehydes or hemiacetals or full acetals thereof,  
b) hydrolysis of the thus obtained vinyl ester polymers, and optionally  
c) acetalization of the partly hydrolyzed or fully  
30 hydrolyzed vinyl ester polymers.

6. The process as claimed in claim 5, characterized in that the free-radical polymerization is carried out by means of bulk polymerization, suspension  
35 polymerization or by polymerization in organic solvents.

7. The process as claimed in claim 5 or 6, charac-

terized in that the hydrolysis of the vinyl ester polymers is effected in alkaline or acidic media with the addition of acid or base.

- 5 8. The process as claimed in claim 5 to 7, characterized in that acetalization is effected by reacting the partly or fully hydrolyzed vinyl ester polymers with aliphatic or aromatic aldehydes having preferably from 1 to 15 carbon  
10 atoms which may optionally be substituted by one or more substituents from the group consisting of hydroxyl, carboxyl and sulfonate, ammonium, aldehyde radicals.
- 15 9. The process as claimed in claim 5 to 8, characterized in that further regulators based on silane-containing compounds or on aldehydes are additionally used in the polymerization.
- 20 10. The use of a silane-containing polyvinyl acetal from claim 1 to 4 as a binder for printing inks, and in the form of films thereof for laminated safety glass and glass laminates, high-performance safety glass or glazing films.
- 25 11. The use of a silane-containing polyacetal from claim 1 to 4 as a protective colloid for aqueous dispersions and in polymerization in an aqueous medium, and in the preparation of dispersion  
30 powders redispersible in water.
- 35 12. The use of a silane-containing polyvinyl acetal from claim 1 to 4 as a binder in water-based coatings, in powder coatings, in corrosion protectants, in the ceramics industry, for ceramic powders and metal powders in power injection molding and as a binder for the interior coating of cans.

13. The use of a silane-containing polyvinyl alcohol  
from claim 1 to 4 as a protective colloid in  
polymerization, as a binder for paper coating  
5 slips, and as a binder for building materials,  
ceramics and wood.